

**CLAIMS:**

1. A method for enhancing the bioavailability of a drug in a subject,  
comprising administering to the subject a hydrophobic peptide in an amount sufficient to  
5 enhance the bioavailability of the drug in the subject.

2. The method of claim 1, wherein the hydrophobic peptide is a  $\beta$ -amyloid  
peptide derivative.

10 3. The method of claim 2, wherein the  $\beta$ -amyloid peptide derivative is  
selected from the group consisting of PPI-558, PPI-657, PPI-1019, PPI-578, and PPI-  
655.

15 4. The method of claim 3, wherein the  $\beta$ -amyloid peptide derivative is PPI-  
1019.

5. The method of claim 1, wherein the drug and the hydrophobic peptide are  
administered to the subject simultaneously.

20 6. The method of claim 1, wherein the drug and the hydrophobic peptide are  
administered to the subject at different times.

7. The method of claim 1, further comprising administering to the subject a  
P-glycoprotein inhibitor.

25 8. The method of claim 7, wherein the P-glycoprotein inhibitor is selected  
from the group consisting of antiarrhythmics, antibiotics, antifungals, calcium channel  
blockers, cancer chemotherapeutics, hormones, antiparasites, local anesthetics,  
phenothiazines, and tricyclic antidepressants.

30 9. The method of claim 1, further comprising administering to the subject a  
cytochrome P450 inhibitor.

35 10. The method of claim 1, wherein the bioavailability of the drug is  
enhanced in the brain of the subject.

11. The method of claim 10, wherein the subject is suffering from a CNS disorder.

5 12. The method of claim 11, wherein the CNS disorder is a neurodegenerative disorder.

13. The method of claim 11, wherein the CNS disorder is Alzheimer's disease.

10 14. The method of claim 1, wherein the drug inhibits aggregation of natural  $\beta$ -amyloid peptide.

15 15. The method of claim 1, wherein the oral bioavailability of the drug is enhanced in the subject.

16. The method of claim 1, wherein the  $\beta$ -amyloid peptide derivative is administered to the subject intravenously.

20 17. The method of claim 1, wherein the  $\beta$ -amyloid peptide derivative is administered to the subject intramuscularly.

18. The method of claim 1, wherein the  $\beta$ -amyloid peptide derivative is administered to the subject subcutaneously.

25 19. The method of claim 1, wherein the subject is a human.

30 20. A method for enhancing the bioavailability of a drug to the brain of a subject suffering from Alzheimer's disease, comprising administering to the subject a hydrophobic peptide in an amount sufficient to enhance the bioavailability of the drug to the brain of the subject.

21. The method of claim 20, wherein the hydrophobic peptide is a  $\beta$ -amyloid peptide derivative.

35 22. The method of claim 21, wherein the  $\beta$ -amyloid peptide derivative is selected from the group consisting of PPI-558, PPI-657, PPI-1019, PPI-578, and PPI-655.

23. The method of claim 22, wherein the  $\beta$ -amyloid peptide derivative is PPI-1019.

24. A method for enhancing the bioavailability of a  $\beta$ -amyloid peptide derivative to the brain of a subject, comprising administering to the subject the  $\beta$ -amyloid peptide derivative and a P-glycoprotein inhibitor, thereby enhancing the bioavailability of the  $\beta$ -amyloid peptide derivative to the brain of the subject.

25. The method of claim 24, wherein the  $\beta$ -amyloid peptide derivative is selected from the group consisting of PPI-558, PPI-657, PPI-1019, PPI-578, or PPI-655.

26. The method of claim 25, wherein the  $\beta$ -amyloid peptide derivative is PPI-1019.

27. The method of claim 24, wherein the P-glycoprotein inhibitor is valspodar.

28. The method of claim 24, wherein the P-glycoprotein inhibitor is cyclosporin A.

29. The method of claim 24, wherein the P-glycoprotein inhibitor is selected from the group consisting of antiarrhythmics, antibiotics, antifungals, calcium channel blockers, cancer chemotherapeutics, hormones, antiparasites, local anesthetics, phenothiazines, and tricyclic antidepressants.

30. The method of claim 24, further comprising administering to the subject a cytochrome P450 inhibitor.

31. The method of claim 24, wherein the  $\beta$ -amyloid peptide derivative and the P-glycoprotein inhibitor are administered simultaneously.

32. The method of claim 24, wherein the  $\beta$ -amyloid peptide derivative and the P-glycoprotein inhibitor are administered at different times.

33. A method for enhancing the bioavailability of a  $\beta$ -amyloid peptide derivative to the brain of a subject, comprising administering to the subject the  $\beta$ -

amyloid peptide derivative and a cytochrome P450 inhibitor, thereby enhancing the bioavailability of the  $\beta$ -amyloid peptide derivative to the brain of the subject.

34. The method of claim 33, wherein the  $\beta$ -amyloid peptide derivative is  
5 selected from the group consisting of PPI-558, PPI-657, PPI-1019, PPI-578, or PPI-655.

35. The method of claim 34, wherein the  $\beta$ -amyloid peptide derivative is PPI-  
1019.

36. The method of claim 33, further comprising administering to the subject a  
P-glycoprotein inhibitor.

37. The method of claim 36, wherein the P-glycoprotein inhibitor is  
valspodar.

38. The method of claim 36, wherein the P-glycoprotein inhibitor is  
cyclosporin A.

39. The method of claim 36, wherein the P-glycoprotein inhibitor is selected  
20 from the group consisting of antiarrhythmics, antibiotics, antifungals, calcium channel  
blockers, cancer chemotherapeutics, hormones, antiparasites, local anesthetics,  
phenothiazines, and tricyclic antidepressants.

40. The method of claim 33, wherein the  $\beta$ -amyloid peptide derivative and  
25 the cytochrome P450 inhibitor are administered simultaneously.

41. The method of claim 33, wherein the  $\beta$ -amyloid peptide derivative and  
the cytochrome P450 inhibitor are administered at different times.

42. A pharmaceutical composition comprising a  $\beta$ -amyloid peptide derivative  
and a drug.

43. The pharmaceutical composition of claim 42, further comprising a P-  
glycoprotein inhibitor.

44. The pharmaceutical composition of claim 42, further comprising a  
cytochrome P450 inhibitor.

45. The pharmaceutical composition of claim 42, further comprising a pharmaceutically acceptable carrier.

5 46. The pharmaceutical composition of claim 42, wherein the pharmaceutically acceptable carrier is a lipid-based carrier.

47. A pharmaceutical composition comprising a  $\beta$ -amyloid peptide derivative and a P-glycoprotein inhibitor.

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48. A pharmaceutical composition comprising a  $\beta$ -amyloid peptide derivative and a cytochrome P450 inhibitor.

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49. A kit comprising a  $\beta$ -amyloid peptide derivative and instructions for administration to a subject to enhance the bioavailability of a drug in the subject.

50. The kit of claim 49, further comprising a drug.

51. The kit of claim 49, further comprising a P-glycoprotein inhibitor.

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52. The kit of claim 49, further comprising a cytochrome P450 inhibitor.

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53. A method for treating or preventing hepatic injury in a subject in need thereof, comprising administering to the subject a P-glycoprotein inhibitor in an amount effective to treat or prevent hepatic injury in the subject, thereby treating or preventing hepatic injury in a subject in need thereof.

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54. The method of claim 53, wherein the P-glycoprotein inhibitor is selected from the group consisting of antiarrhythmics, antibiotics, antifungals, calcium channel blockers, cancer chemotherapeutics, hormones, antiparasites, local anesthetics, phenothiazines, and tricyclic antidepressants.

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55. The method of claim 53, further comprising administering to the subject a cytochrome P450 inhibitor.

56. The method of claim 53, wherein the hepatic injury is selected from the group consisting of hepatic fibrosis, hepatic cirrhosis, hepatic injury due to prolonged

ethanol uptake, hepatic injury caused by a drug, hepatic injury due to carbon tetrachloride exposure.

57. A method for treating or preventing hepatic injury in a subject in need thereof, comprising:

selecting a subject in need of treatment for or prevention of hepatic injury; and administering to the subject a P-glycoprotein inhibitor in an amount effective to treat or prevent hepatic injury in the subject, thereby treating or preventing hepatic injury in a subject in need thereof.

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58. A method for modulating the levels of a hepatic enzyme in a subject, comprising:

selecting a subject in need of modulation of levels of hepatic enzymes; and administering to the subject a P-glycoprotein inhibitor in an amount effective to modulate the levels of a hepatic enzyme in the subject.

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59. A method for modulating the levels of a hepatic enzyme in a subject, comprising administering to the subject a P-glycoprotein inhibitor in an amount effective to modulate the levels of a hepatic enzyme in the subject.

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60. The method of claim 59, wherein the levels of the hepatic enzyme in the subject are decreased.

61. The method of claim 59, wherein the hepatic enzyme is alanine aminotransferase.

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62. The method of claim 59, wherein the hepatic enzyme is aspartate aminotransferase.

63. The method of claim 59, wherein the hepatic enzyme is  $\gamma$ -glutamyl transferase.

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64. A pharmaceutical composition comprising a P-glycoprotein inhibitor and a drug, wherein the drug is present in an amount effective to treat a targeted condition in a subject and the P-glycoprotein inhibitor is present in an amount effective to prevent hepatic injury in the subject.

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65. A kit comprising a P-glycoprotein inhibitor, a drug, and instructions for administration to a subject in an amount effective to treat a targeted condition in the subject and prevent hepatic injury in the subject.